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Effect of Temperature on Ultrasonic Signal Propagation for Extra Virgin Olive Oil Adulteration (Conference Paper)

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Abstract

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Fraud cases involving adulteration of extra virgin olive oil has become significant nowadays due to increasing in cost of supply and highlight given the benefit of extra virgin olive oil for human consumption. This paper presents the effects of temperature variation on spectral formed utilising pulse-echo technique of ultrasound signal. Several methods had been introduced to characterize the adulteration of extra virgin olive oil with other fluid sample such as mass chromatography, standard method by ASTM (density test, distillation test and evaporation test) and mass spectrometer. Pulse-echo method of ultrasound being a non-destructive method to be used to analyse the sound wave signal captured by oscilloscope. In this paper, a non-destructive technique utilizing ultrasound to characterize extra virgin olive oil adulteration level will be presented. It can be observed that frequency spectrum of sample with different ratio and variation temperature shows significant percentages different from 30% up to 70% according to temperature variation thus possible to be used for sample characterization. © Published under licence by IOP Publishing Ltd.

Indexed keywords

Engineering controlled terms:	Distillation	Nondestructive examination	Temperature	Temperature distribution
	Ultrasonic applications	Ultrasonic testing		
Compendex keywords	Effect of temperature	Effects of temperature	Extra virgin olive oil	Non-destructive technique
	Nondestructive methods	Pulse-echo technique	Temperature variation	Ultrasonic signals
Engineering main heading:	Olive oil			

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